FORTNIGHTLY DROUGHT WATCH BULLETIN

(16th to 30th April, 2025)

Pakistan Meteorological Department

National Drought Monitoring Centre

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National Drought Monitoring Centre

1. Rainfall Analysis during Second Fortnight of April, 2025

During the period from April 16 to 31, 2025, moderate to heavy rainfall were recorded in northern regions of Pakistan, that include upper Khyber Pakhtunkhwa (KP), upper Punjab, Kashmir, and Gilgit-Baltistan. The most substantial rainfall occurred in the upper areas of KP and Kashmir, likely influenced by successive western disturbances traversing the region during this timeframe. Figure 1 delineates the spatial distribution of rainfall across the country for this period, while Table 1 provides top ten stations quantitative measurements obtained from meteorological observatories.

Rainfall Table					
S. No	**Station**	**Rainfall (mm)**	**S. No**	**Station**	**Rainfall (mm)**
1.	Skardu	86.4	6.	Dir	52.0
2.	Astore	85.4	7.	Balakot	46.0
3.	Pattan (Kohistan)	60.0	8.	Chillas	46.0
4.	Muzaffarabad AP	54.3	9.	Muzaffarabad City	46.0
5.	Gari Dupatta	53.6	10.	Kalam	44.8

Table 1: Chief amounts of rainfall (mm)

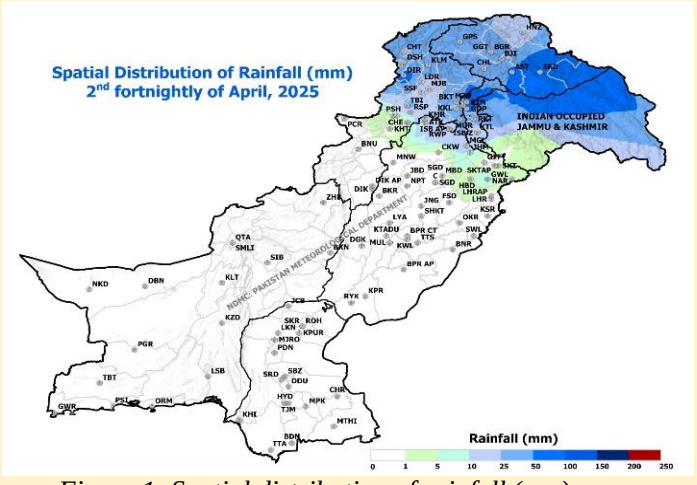

Figure 1: Spatial distribution of rainfall (mm)

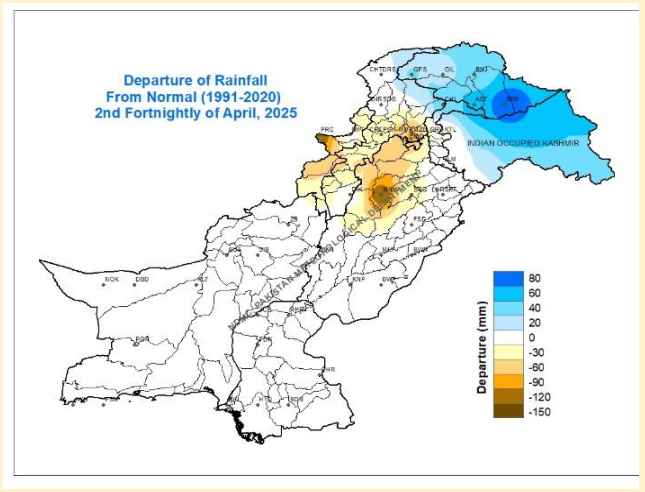

Figure 2: Departure of rainfall (mm)

2. Departure of Rainfall during Second Fortnight of April, 2025

Figure 2 illustrates the deviation of observed precipitation from the 30-year climatological average (1991–2020) across Pakistan during the Second half of April 2025. Significant negative anomalies were recorded in the Potohar Plateau, Mianwali and parts of Khyber Pakhtunkhwa, however, GB received above normal rainfall. The remaining parts of the country exhibited near-normal dry conditions, consistent with the established climatological patterns for this period.

Figure 3 illustrates the average rainfall distribution (in millimeters) during the second half of April, based on data from 1991 to 2020. In this period, most of the southern regions of the country typically receives rainfall between 0 to 20 mm. However, areas such as Kashmir, Khyber Pakhtunkhwa, the Potohar region, Mianwali, receives higher average rainfall, ranging from 40 to 150 mm.

Figure 4 shows the fortnightly climatological temperature distribution. The warmest regions are Sindh province and southern Punjab. Mean temperatures range from 10 to 32°C in the country.

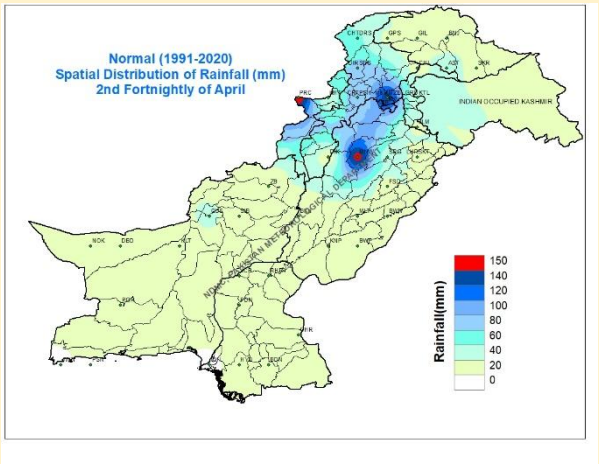

Figure 3: Normal distribution of rainfall (mm)

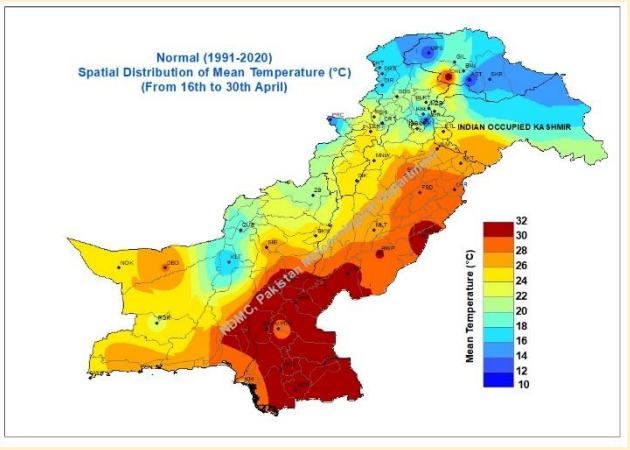

Figure 4: Normal distribution of Temperature (°C)

3. Mean Temperature Analysis during the Second Fortnight of April, 2025

Figure 5 presents the spatial distribution of mean surface air temperatures (°C) across Pakistan, during the second half of April 2025. The lowest average temperatures were recorded in the northern regions, including upper Khyber Pakhtunkhwa, Kashmir, and Gilgit-Baltistan, where high-altitude topography and residual snow cover contributed to cooler conditions. Central areas of the country experienced moderate temperatures, reflecting transitional climatic zones. Conversely, high temperatures were observed in the southern regions, particularly in Sindh and southern Punjab. These areas are characterized by arid to semi-arid climates, which, combined with early seasonal warming, resulted in higher temperature readings.

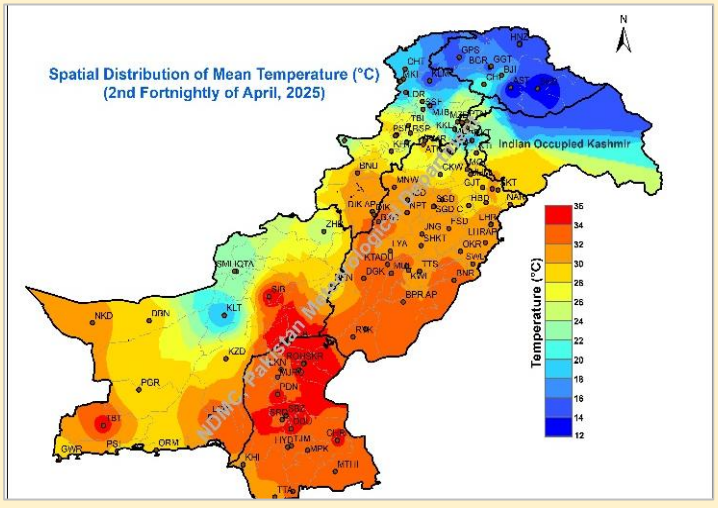

Figure 5: Spatial distribution of the Mean Temperature (°C)

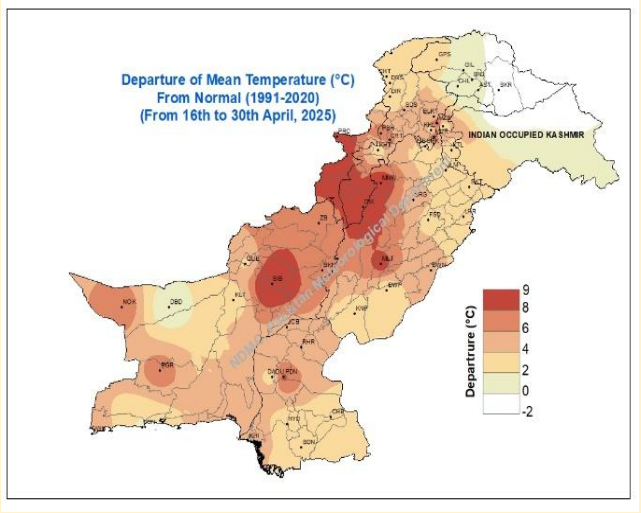

Figure 6: Departure of Mean Temperature (°C) from the Normal (1991-2020)

1. Departure of Temperature during the Second Fortnight of April, 2025

Figure 6 explains the spatial distribution of mean temperature anomalies (°C) across Pakistan during the second half of April 2025, relative to the 1991–2020 climatological baseline. The analysis reveals that the country experienced widespread positive temperature anomalies, with average temperatures ranging from 1°C to 9°C above the long-term normal. Such anomalies underscore the ongoing impact of global climate change on regional temperature patterns. These elevated temperatures exacerbated pre-existing mild drought conditions by intensifying soil moisture deficits and hydric stress. Meteorological analyses indicate that the combination of unusually warm temperatures and limited moisture availability reinforced the severity of drought in affected areas.

2. Maximum Length of Consecutive Dry Days (CCD)

The length of dry spells is measured by Consecutive Dry Days (CDD), defined as periods receiving less than one millimeter of rainfall. Figure 7 illustrates the spatial distribution of CDD across various regions. Turbat recorded the highest number of CDD as 267, while Sindh experienced between 200 and 260 consecutive dry days, indicating increased water demand in these areas.

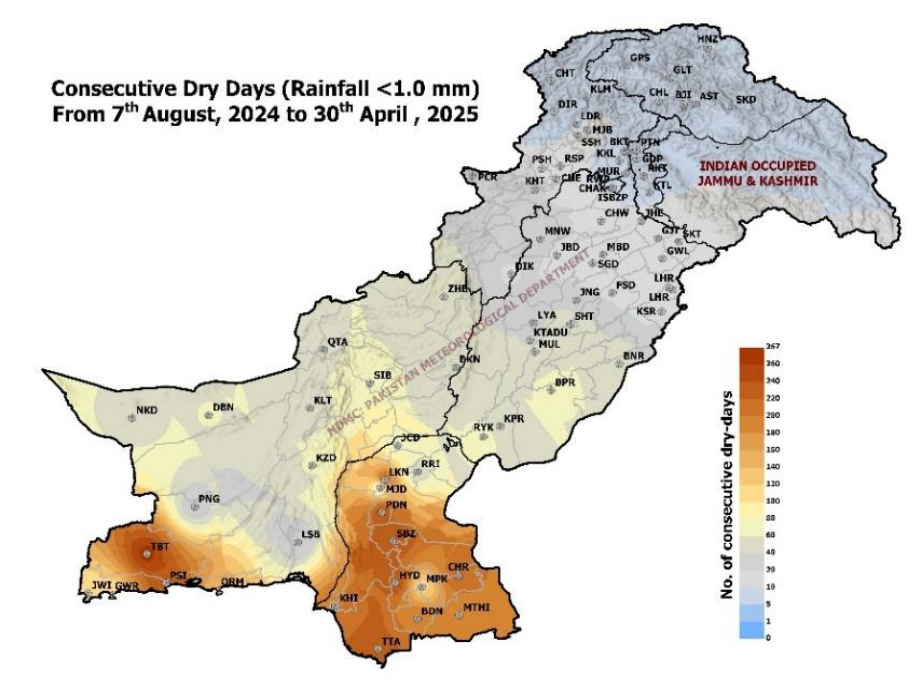

Figure 7: Spatial Distribution of Dry Days Spell

3. Water availability

Recent snow and glacial melt, coupled with the April rainfall, have led to rising water levels in major reservoirs. As of late April 2025, Tarbela and Mangla reservoir water levels were approximately 1,435 feet and 1,128 feet respectively. These increases are attributed to enhanced inflows from upper-catchment meltwater and precipitation. The improved reservoir storage is expected to mitigate drought impacts in southern Punjab and Sindh by supporting irrigation withdrawals for downstream canal networks.

4. Weather Forecast

Weather may produce intermittent rainfall during the first half of May 2025 across both upper and lower regions of the country, including drought-affected areas of Sindh. During this period, temperatures are expected to stay below the climatic average, leading to reduced evapotranspiration in most areas. Mean temperatures are anticipated to remain below normal nationwide, with significant departures in most of the plains.

5. Drought Situation Analysis

- Between April 16 and 30, 2025, moderate to heavy rainfall was recorded across northern regions of Pakistan, including upper Khyber Pakhtunkhwa (KP), upper Punjab, Kashmir, and Gilgit-Baltistan. The most intense precipitation was observed in upper KP and Kashmir, likely driven by successive western disturbances moving through the area during this period.
- Simultaneously, mean surface air temperatures across the country ranged 1–9°C above the 1991–2020 climatological average. This temperature anomaly was especially significant in central regions such as lower KP and western Punjab, where temperatures exceeded normal by 6–9°C. These elevated temperatures intensified drought conditions in mildly affected central areas, exacerbating soil moisture deficits and water stress.
- Water levels in key reservoirs—Mangla, Tarbela, Rawal, and Khanpur—have begun to rise due to a combination of glacial melt and recent rainfall. As of now, Tarbela and Mangla reservoirs have reached levels of 1,435 feet and 1,128 feet, respectively. These increases in water inflow from upper catchments are expected to alleviate drought impacts in southern Punjab and Sindh by supporting irrigation through canal systems.
- Forecasts for the first half of May 2025 indicate rainfall over the drought-prone southern regions, potentially bringing much-needed relief. Additionally, the improved reservoir levels at Tarbela and Mangla will aid irrigation efforts in canal-fed areas of Punjab and Sindh, further easing water scarcity.
- In view of these developments, residents and businesses are encouraged to adopt water conservation practices—such as repairing leaks, using water-efficient appliances, and scheduling garden watering during early morning or late evening hours to reduce evaporation.
- Moreover, all relevant stakeholders in the affected areas should stay informed through official weather updates and develop appropriate disaster risk reduction plans to manage the impacts of ongoing climatic conditions.